

PRELIMINARY REVISION OF THE BOMBYCES OF AMERICA NORTH OF MEXICO.

By B. NEUMÖGEN AND HARRISON G. DYAR.

(CONTINUED FROM PAGE 76.)

P. geminata Packard.

1864—*Packardia geminata* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 343.

Marked exactly as in *albipunctata* but with paler secondaries and the shading on primaries usually less extensive. Expanse, 26 mm.

Habitat, Northern Atlantic States. Probably not different from the following.

P. albipunctata Packard.

1864—*Packardia albipunctata* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 344.

1880—*Packardia goodellii* GROTE, Can. Ent., Vol. XII, p. 242.

var. *ocellata* Grote.

1865—*Packardia ocellata* GROTE, Proc. Ent. Soc. Phil., Vol. IV, p. 322.

Ground color white; three brown bands, the inner two oblique, parallel; the third running in a reverse direction from costa to internal angle where are two or three superposed silvery white spots. The wing is more or less obscured by ochreous and chocolate brown shadings, though the ground color appears at the apex; secondaries blackish. Expanse, 23—27 mm.

Habitat, Northern Atlantic States.

Family LAGOIDÆ.

Synopsis of genera.

Vein 1 of primaries branched.

Veins 3 and 4 of secondaries stalked **Carama.**

Veins 3 and 4 arising separately **Megalopyge.**

Vein 1 of primaries unbranched.

Antennæ longer than thorax; body robust **Eupoeya.**

Antennæ very short; primaries with accessory cell **Dalcerides.**

Genus *Carama* Walker.

1855—*Carama* WALKER, Cat. Brit. Mus., pt. IV, p. 843.

1858—*Mallatodesma* WALLENGREN, Nat. Akad. Handl., Vol. XV, p. 212.

1864—*Ulosota* GROTE, Proc. Ent. Soc. Phil., Vol. III, p. 524.

C. cretata Grote.

1864—*Ulosota cretata* GROTE, Proc. Ent. Soc. Phil., Vol. III, p. 524.

Silky milk white, immaculate, except the head which is lemon yellow between the antennæ, and blackish beneath. Antennæ pale fulvous brown, the stem white at base. Abdomen marked with fulvous on the segments; dorsal hairs white, except a large, pale, lemon yellow tuft at base. Expanse, 27 mm.

Habitat, Southern States [Grote].

Genus **Megalopyge** Hübner.

1822?—*Megalopyge* HÜBNER, Verz. bek. Schmett., p. 185.

1841—*Lagoa* HARRIS, Rep. Ins. Mass., p. 205.

1855—*Chrysopyga* HERRICH-SCHLÆFFER, Ausser. Schmett., Vol. I, p. 6.

1855—*Gasina* WALKER, Cat. Brit. Mus., pt. VI, p. 1478.

1856—*Podalia* WALKER, Cat. Brit. Mus., pt. VII, p. 1714.

1860—*Pimela* CLEMENS, Proc. Acad. Nat. Sci. Phil., Vol. XII, p. 156.

Synopsis of species.

Wings immaculate brownish ocher	pyxidifera.
Wings shaded with black and brown.	
Color ocher yellow	opercularis.
Color straw yellow	crispata.

M. pyxidifera Abbot & Smith.

1797—*Phalæna pyxidifera* ABBOT & SMITH, Lep. Ins. Ga., Vol. II, pl. 54.

Immaculate brownish ocher throughout, the thorax rather darker and hind wings paler. Body woolly as also base of fore wings. Expanse, 25 mm.

Habitat, Southern Atlantic States.

M. opercularis Abbot & Smith.

1797—*Phalæna opercularis* ABBOT & SMITH, Lep. Ins. Ga., Vol. II, pl. 53.

1860—*Pimela lanuginosa* CLEMENS, Proc. Acad. Nat. Sci. Phil., Vol. XII, p. 157.

1869—*Miresa* (?) *subcitrina* WALKER, Char. Lep. Het., p. 20.

Thorax brownish ocher, fore wings at apices dull yellow, secondaries straw yellow. Basal two-thirds of primaries covered with wrinkled hairs of a purplish brown color mixed with white, the purplish tint predominating on costa. Expanse, 25—38 mm.

Habitat, Southern States.

M. crispata Packard.

1864—*Lagoa crispata* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 335.

Pale straw yellow, the long wool on basal part of fore wing much wrinkled, purplish black along the costa and brown over the

discal area, leaving a broad terminal space of the ground color.
Expanse, 25—30 mm.

Habitat, Northern Atlantic States.

Genus **Eupoeya** Packard.

1893—*Eupoeya* PACKARD, Ent. News, Vol. IV, p. 167.

E. slossoniæ Packard.

1893—*Eupoeya slossoniæ* PACKARD, Ent. News, Vol. IV, p. 169.

Pure white with no markings; pectinations of antennæ dusky.

Expanse, 22 mm.

Habitat, Florida.

Genus **Dalcerides** Neumegen & Dyar.

1893—*Dalcerides* NEUMEGEN & DYAR, Can. Ent., Vol. XXV, p. 121.

D. ingenita Hy. Edwards.

1882—*Artaxa ingenita* HY. EDWARDS, Papilio, Vol. II, p. 12; 1893—NEUMEGEN & DYAR, Can. Ent., Vol. XXV, p. 121.

Thorax and fore wings dark ochereous, abdomen and hind wings reddish ochereous, immaculate. Wings broad, rounded, antennæ not as long as the thorax. Expanse, 35 mm.

Habitat, Arizona.

Family DIOPTIDÆ.

Genus **Phryganidia** Packard.

1864—*Phryganidia* PACKARD, Proc. Ent. Soc. Phil., Vol. IV, p. 348.

P. californica Packard.

1864—*Phryganidia californica* PACKARD, Proc. Ent. Soc. Phil., Vol. IV, p. 349.

Uniform pale brown, translucent, veins showing prominently; collar tinged with yellow. In the ♂ a pale yellow, diffuse cloud beyond the end of cell. Expanse, 30—35 mm.

Habitat, California.

According to Kirby's Catalogue, the following species occurs in North America. It is unknown to us:—

Dioptis megæra Fabricius.

1787—*Bombyx megæra* FABRICIUS, Mant. Ins., Vol. II, p. 109, n. 12.

Fore wings light bluish spotted with white. Hind wings white in the middle, bluish at apex with waved reddish bands. (Linné Syst. Nat. (5), 2404, n. 467).

Family NOTODONTIDÆ.*

Synopsis of subfamilies and genera.

Outer margin of primaries excavate below apex; accessory cell on a long stalk	Apatelodinæ.
Outer margin entire, or at most moderately excavate between the termination of the nervules.	
Antennæ of ♂ bipectinated to the tip or simple	Notodontinæ.
Antennæ of ♂ with distinct pectinations.	
Primaries with an accessory cell.	
A tufted tooth on internal margin of primaries	Notodonta.
Internal margin entire.	
Pectinations of antennæ long.	
Thorax with large central tuft	Nadata.
Thorax untufted	Hyparpax.
Pectinations moderate or short.	
Costa of primaries straight, apex rectangular	Symmerista.
Costa convex, apex rounded	Nerice.
Primaries without accessory cell. (Rarely a small one in one <i>Cerura</i> .)	
Internal margin entire.	
Vein 5 of secondaries distinct	Cerura.
Vein 5 of secondaries weak or absent.	
Tip of abdomen with a brush-like tuft	Melalopha.
Tip of abdomen simple.	
Size small	Gluphisia.
Size larger	Eumelia.
A tufted tooth on internal margin of primaries	Pheosia.
Antennæ of ♂ simple, without distinct pectinations.	
A tufted tooth on internal margin of primaries.	
Accessory cell absent	Lophodonta.
Accessory cell present	Lophopteryx.
Internal margin entire.	
Accessory cell present	Datana.
Accessory cell absent	Nystalea.
Antennæ of ♂ pectinated for basal two-thirds or more, the tips bare	Heterocampinæ.
A slight tooth on internal margin of primaries	Ianassa.
Internal margin entire.	
Accessory cell present.	
Antennæ of ♀ simple.	
Antennæ of ♂ pectinated for basal three-fourths or less.	
A vertical tuft on the head; black spots above internal angle of primaries	Dasylophia.
Head without a distinct erect tuft.	
Terminal abdominal hairs gathered into a more or less conspicuously bifid tuft	Schizura.

* For a fuller treatment of this family see Trans. Am. Ent. Soc., Vol. XXI, pp. 179-208.

Anal tuft not normally bifid.	
Accessory cell moderately long	Euhyparpax.
Accessory cell reaching half-way to apex of wing.	
Wings elongate, more than twice as long as broad	Heterocampa.
Wings shorter, twice as long as broad or less	Cecrita.
Antennæ of ♂ pectinated nearly to tip	Misogada.
Antennæ of ♀ pectinated	Litodonta.
Accessory cell absent; veins 6-10 stalked.	
Head moderately prominent	Macrurocampa.
Head sunken in the thorax	Ellida.

Subfamily APATELODINÆ.

Genus **Apatelodes** *Packard.**Synopsis of species.*

Outer margin entire below vein 5	torrefacta.
Outer margin deeply excavate between the terminations of veins	angelica.

Subfamily NOTODONTINÆ.

Genus **Notodonta** *Ochsenheimer.**Synopsis of species.*

Size large; external margin of primaries excavate between the veins	elegans.
Size smaller; external margin entire.	
Fore wings shaded with ocher and brown along internal and external margins.	
Thorax dark ash-gray	stragula
Thorax blackish gray	pacifica.
Fore wing without ocherous brown marks, but with longitudinal black dashes before internal angle.	
Primaries yellowish at base and disk	georgica.
Primaries uniform stone-gray	tortuosa.

Genus **Nadata** *Walker.**Synopsis of forms.*

Color buff or orange buff to red.	
General color buff.	
Excavations on external margin filled in with white	gibbosa.
Fringe uniformly ocherous	var. doubledayi.
Color deep orange red	race rubipennis.
Color straw yellow.	
Wings without black shades	race oregonensis.
A black shade at end of cell	var. behrensi.

Genus *Hyparpax* *Hübner*.*Synopsis of species.*

- Median space clear yellow **aurora.**
 Median space irrorate or covered by reddish scales.
 Fore wing pink, with only a line of yellow **venus.**
 Fore wing pale, dull ochereous with lines and irrorations of brownish
 red **perophoroides.**

Genus *Symmerista* *Hübner*.*Synopsis of species.*

- A white costal edging **albifrons.**
 No white edging **packardii.**

Genus *Nerice* *Walker*.*N. bidentata* *Walker*.Genus *Cerura* *Schrank*.*Synopsis of species.*

- Primaries crossed by about eight angularly undulate black lines.
 Secondaries black **multiscripta.**
 Secondaries white **scitiscipta.**
 Primaries crossed at basal third by a broad gray band, sometimes absent.
 One or more transverse dentate lines on discal area before the sub-
 terminal shade.
 Transverse band gray, pulverulent, bordered by black and orange scales.
 Fore wings pale cinereous **occidentalis.**
 Fore wings white.
 Transverse band broad **scolopendrina.**
 Transverse band narrow or broken *var.* **albicoma.**
 Band even blackish, without distinct borders **modesta.**
 A double row of venular dots, forming an ellipse, sometimes
 obsoletely connected **borealis.**
 A single row of venular dots, preceded by a rigid shade line, or
 discal area immaculate.
 Fore wings dark cinereous **cinerea.**
 Fore wings pale cinereous *var.* **cinereoides.**
 Fore wings nearly white.
 Transverse gray band distinct *var.* **placida.**
 This band very obscure or absent *var.* **nivea.**

Genus *Melalopha* *Hübner*.*Synopsis of species.*

- Lines on primaries not anastomosing, free.
 Size large with a distinct large brown apical shade **albosigma.**
 Size smaller; apical region not distinctly discolored.

- Wing uniform in tint **alethe.**
- Wing shaded with darker blotches.
 - Pale, the blotches contrasting **brucei.**
 - Dark, more uniformly obscured **multnoma.**
- Lines anastomosing, the second joining the third.
 - Lines uneven, the basal toothed.
 - Subapical patch pale, yellowish, the s.-t. dots preceded by streaks **strigosa.**
 - Patch yellowish to rusty-brown, without streaks.
 - Size moderate; thoracic mark present **apicalis.**
 - Larger; no thoracic mark **inornata.**
 - Lines nearly even, the basal one dislocated, but not toothed.
 - 4th line white on costa **inclusa.**
 - 4th line not distinctly white **jocosa.**

Genus **Gluphisia** *Boisdual.*

Synopsis of species.

- With a yellow (or black) central band on primaries more or less distinct.
 - Markings distinct **septentrionalis.**
 - Markings confused and irrorate **formosa.**
- Pale, with no distinct yellowish markings **albofascia.**



Genus **Eumelia** *Neumegen.*

Synopsis of species.

- A yellow angular discal dot **severa.**
- No discal dot **liutneri.**

Genus **Pheosia** *Hübner.*

Synopsis of species.

- A silvery white line at base of vein 1.
 - Central part of fore wing white **dimidiata.**
 - Wing centrally smoky black **portlandia.**
- Without silvery white mark.
 - Uniform blackish gray with black discal dot **simplaria.**
 - Primaries brown at base; no discal dot **basitriens.**

Genus **Lophodonta** *Packard.*

Synopsis of species.

- Primaries partly shaded with ferruginous brown **ferruginea.**
- Primaries with scattered ocher-yellow marks **angulosa.**

Genus **Lophopteryx** *Stephens.*

L. capucina *Linnaeus.*

Genus *Datana* Walker.*Synopsis of species.*

- Outer margin of primaries distinctly excavate between the veins.
 Color entirely smoky or blackish brown **angusii.**
 Color yellowish brown or paler.
 Discal spots faint or absent, size medium.
 Color yellow brown **ministra.**
 Color testaceous **californica.**
 Discal spots distinct, size large **drexelii.**
- Outer margin indistinctly excavate, nearly entire in the ♂.
 Color tawny-brown or purplish.
 Tawny-brown, discal spots distinct, size large **major.**
 More or less purplish, discal spots indistinct, size medium.
 Thoracic patch reddish brown.
 Fore wings dull whitish lilac, more or less covered with
 cinnamon-brown scales **palmii.**
 Fore wings dark brown with a purplish flush **floridana.**
 Thoracic patch ochereous **modesta.**
- Color yellowish buff.
 Thoracic patch tawny-brown **perspicua.**
 Thoracic patch as pale as thorax **robusta.**
- Outer margin of primaries entire or a little wavy in the ♀.
 Primaries dark reddish-brown, lines and fringe concolorous, **integerrima.**
 Primaries luteous-tawny, lines and fringe not concolorous **contracta.**

Genus *Nystalea* Guenée.*N. indiana* Grote.

Subfamily HETEROCAMPINÆ.

Genus *Ianassa* Walker.*Synopsis of species.*

- Yellowish or sordid cinereous **lignicolor.**
 Bright bluish cinereous **coloradensis.**

Genus *Dasylophia* Packard.*Synopsis of species.*

- T.-p. line on primaries distinct, arcuate, even **anguina.**
 T.-p. line obsolete superiorly; markings streaked longitudinally, **thyatiroides.**

Genus *Schizura* Doubleday.*Synopsis of species.*

- Transverse bands largely absent.
 Size small (36 mm. or less), the brown shade along internal margin
 of primaries, distinct **concinna.**
 Size larger (40 mm. or more), this shade less distinct or absent.
 Yellowish cinereous at apex, reddish shade moderately distinct, **eximia.**

Bright cinereous at apex; shade along internal margin yellowish
or absent

perangulata.

Transverse bands normally present.

Discal dot surrounded by a light cinereous space.

Scarcely any black shading on primaries **ipomææ.**

Two long black dashes **var. telifer.**

Whole middle of wing black to outer margin **cinereofrons.**

Discal dot on the ground color.

Primaries pale green at extreme base **unicornis.**

Without green tints.

Discal dot lunate; size small.

Transverse lines distinct, black, coarsely undulate **apicalis.**

Lines faint, reddish, finely undulate **nitida.**

Discal dot round; size larger **leptinoides.**

Genus **Euhyparpax** *Beutenmüller.*

E. rosea *Beutenmüller.*

Genus **Heterocampa** *Doubleday.*

Synopsis of species.

Size large (Expanse, 40 mm. or more.)

Discal streak lunate.

Wings varied with whitish, especially sub-apically.

With conspicuous greenish-gray shades **astarte.**

More uniformly cinereous **obliqua.**

A large brown patch beyond cell **var. trouvelotii.**

Wings very uniformly dark-gray **lunata.**

Wings without distinct white sub-apical shade, sub-basal field

dark **umbrata.**

Discal mark ovate or reniform **manteo.**

Size small (Expanse, 35 mm. or less.)

Wings greenish or gray with white sub-apical shade **subrotata.**

Wings evenly gray without any white shade **belfragei.**

Genus **Cecrita** *Walker.*

Synopsis of species.

Dull greenish; transverse lines purplish brown, geminate, lunulate **biundata.**

Whitish, clouded with black; transverse lines faint **guttivitta.**

Cinereous, with black, geminate, angular, transverse lines **bilineata.**

Genus **Misogada** *Walker.*

M. cinerea *Packard.*

Genus **Litodonta** *Harvey.*

L. hydromeli *Harvey.*

Genus **Macrurocampa** *Dyar.*

M. marthesia *Cramer.*

Genus **Ellida** *Grote.*

E. caniplaga *Walker.*

Family BOMBYCIDÆ.

Genus *Bombyx* *Linnaeus*.1758—*Bombyx* LINNÆUS, Syst. Nat., Vol. I, p. 499.**B. mori** *Linnaeus*.1758—*Bombyx mori* LINNÆUS, Syst. Nat., Vol. I, p. 499, n. 18; 1891—SMITH, List. Lep., No. 1413.

Entirely white, with very faint brown t. a., median and t. p. bands and discal dot. This is the well known "silk-worm" moth, and is cultivated in various parts of this country.

Family PSYCHIDÆ.*

Synopsis of genera.

Vein 1b of primaries sending a branch to internal margin.

Wings elongate, narrow.

Hind wings triangular, apex acuminate **Oiketicus.**Hind wings rounded, apex obtuse **Thyridopteryx.**Wings broader; size small **Psyche.**Vein 6 present on fore wing, absent on hind wing, *group* **Platœceticus.**Vein 6 absent on both wings *group* **Eurycyttarus.**Vein 1b free from inner margin, without a branch **Chalia.**Genus *Oiketicus* *Guilding*.1837—*Oiketicus* GUILDING, Trans. Linn. Soc. Lond., Vol. XV, p. 375.**O. abbotii** *Grote*.

1880—GROTE, N. Am. Ent., Vol. I, p. 52.

♂ Sable brown with a vitreous bar at the extremity of the cell of the primaries. The narrow external edging of the wings is pale. A blackish streak at base on vein 1, and a broad shade from cell outward to external margin. Expanse, 30 mm.

Habitat, Florida.Genus *Thyridopteryx* *Stephens*.1834—*Thyridopteryx* STEPHENS, Ill. Brit. Ent. Haust., Vol. IV, p. 387.1865—*Hymenopsyche* GROTE, Proc. Ent. Soc. Phil., Vol. V, p. 248.*Synopsis of species.*Veins of wings brown **ephemeræformis.**Veins of wings pale orange **meadii.****T. ephemeræformis** *Haworth*.1803—*Sphinx ephemeræformis* HAWORTH, Lep. Brit., p. 72.1864—*Ecleticus confiferarum* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 351.

* The wingless females of all the species in this family are not very characteristic, and descriptions of them are omitted.

♂ Body black, wings hyaline, the veins brown. Along costa and internal margin of secondaries a few black scales. Expanse, 25 mm

Habitat, Southern States to New York.

T. meadii *Hy. Edwards.*

1881—*Thyridopteryx meadii*, Papilio, Vol. I, p. 116.

Wings hyaline, without black scales at abdominal margin of secondaries; veins pale orange. Expanse, 25 mm.

Habitat, Mohave Desert, California.

Genus **Psyche** *Schrank.*

1802—*Psyche* SCHRANK, Fauna Boica, Vol. II (2), p. 87.

Group **Platœcticus** *Packard.*

1869—*Platœcticus* PACKARD, Guide Study Ins., p. 291; 1887—PACKARD, Ent. Amer., Vol. III, p. 51.

1893—*Heyletisia* HAMPSON, Moths of India, Vol. I, p. 298.

P. gloverii *Packard.*

1869—*Platœcticus gloverii* PACKARD, Guide Study Ins., p. 291, f. 223.

1884—*Mauntha edwardsii* HEYLAERTS, C. R. Soc. Ent. Belg., Vol. XXVIII, p. 101.

Dark brown throughout. Veins 5—6 arise from the discal cross vein. Expanse, 20—22 mm.

Habitat, Southern States.

Group **Eurycyttarus** *Hampson.*

1891—*Eurycyttarus* HAMPSON, Ill. Het. B. M., Vol. VIII, p. 66; 1893—HAMPSON, Moths of India, Vol. I, p. 299.

Synopsis of species.

Small, wings blackish	confederata.
Larger, wings brownish gray	carbonaria.

P. confederata *Grote & Robinson.*

1868—*Psyche confederata* GROTE & ROBINSON, Trans. Am. Ent. Soc., Vol. II, p. 191.

Uniformly blackish; wings opaque. Wings broad, apex of primaries nearly square. Expanse, 16—19 mm.

Habitat, Southern States to New York and westward.

P. carbonaria *Packard.*

1887—*Psyche carbonaria* PACKARD, Ent. Amer., Vol. III, p. 51.

Uniform brownish black, wings sub-translucent. Wings broad, well rounded; body black, hairy. Expanse, 21—22 mm.

Habitat, Texas.

Genus **Chalia** Moore.1877—*Chalia* MOORE, Ann. Nat. Hist. (4), Vol. XX, p. 345.**C. rileyi** Heylaerts.1884—*Chalia rileyi* HEYLAERTS, Ann. Soc. Ent. Belg., Vol. XXVIII, p. 208.

Yellowish gray, densely hairy; head yellowish brown, thorax brownish gray. Wings concolorous, with narrow brownish edge. Expanse, 12 mm. (?)

Habitat, Missouri [Heylaerts].

[For remarks on *Psyche fragmentella* Hy. Edw. and *Oiketicus davidsonii* Hy. Edw. see a paper by Mr. Dyar, Ent. News, Vol. IV, p. 320. These names have been applied to certain larval cases found in California and the moths have never been described.]

Family LACOSOMIDÆ.

Synopsis of genera.

Primaries falcate	Ciccinnus.
Margins of both wings uneven, excavate between the veins	Lacosoma.

Genus **Ciccinnus** Blanchard.1852—*Ciccinnus* BLANCHARD, Gay's Hist. Chile. Zool., Vol. VII, p. 66.1841—*Perophora* HARRIS, Rep. Ins. Mass., p. 290.1841—*Saccophora* HARRIS, Entom., Vol. I, p. 99.**C. melsheimeri** Harris.1841—*Perophora melsheimeri* HARRIS, Rep. Ins. Mass., p. 290.1866—*Arhodia egenaria* WALKER, Cat. Brit. Mus., pt. XXXV, p. 1575.

Cinereous gray, darker along the margins of the wings, the reddish brown of the wing membrane appearing by transparency. Sparsely sprinkled with black atoms. A blackish discal dot and straight t. p. line, the latter present on both wings and arcuate at costa of fore pair. Expanse, 30 mm.

Habitat, Atlantic States.

Genus **Lacosoma** Grote.1864—*Lacosoma* GROTE, Proc. Ent. Soc. Phil., Vol. III, p. 77.**L. chiridota** Grote.1864—*Lacosoma chiridota* GROTE, Proc. Ent. Soc. Phil., Vol. III, p. 78.

Brownish ocher, the fringe marked with black on the veins. On both wings, a black discal dot and broad, diffuse, undulate, smoky brown t. p. band. Expanse, 25 mm.

Habitat, Atlantic States westward.

Family SATURNIIDÆ.

Synopsis of subfamilies.

Antennæ bipectinate doubly, at least in the ♂ **Attacinae.**
 Antennæ never bipectinate doubly **Lemoniinae.**

Synopsis of genera.

Secondaries with one distinct internal vein.

Discal cells open.

Abdomen tufted **Philosamia.**

Abdomen untufted.

Antennæ of both sexes equally doubly bipectinated.

Wings produced at apices and elongate; secondaries
 greatly exceeding abdomen, discal spots
 hyaline **Attacus.**

Wings less elongate, more rounded, spots opaque **Samia.**

Pectinations of ♀ antennæ with the upper branch the
 shorter **Callosamia.**

Discal cells closed.

Antennæ pectinated in both sexes.

Antennæ of ♀ doubly bipectinated.

Both branches equal in length in ♀ **Agapema.**

The upper branch shorter than the lower in ♀.

Secondaries tailed **Tropæa.**

Secondaries angulated at apex and middle of outer
 margin **Telea.**

Antennæ of ♀ singly bipectinated, the upper branches reduced
 to serrations **Saturnia.**

Antennæ of ♀ serrate or simple.

Secondaries ocellate **Automeris.**

Secondaries not ocellate **Thauma.**

Secondaries with two internal veins.

Antennæ of ♂ doubly bipectinated **Coloradia.**

Antennæ of ♂ singly bipectinated.

Vein 5 from the discal cross vein **Lemonia.***

Vein 5 from apex of cell on both wings.

Antennæ of ♀ pectinated **Hemileuca.**

Antennæ of ♀ serrate or very shortly pectinated **Pseudohazis.**

Subfamily **Attacinae.**Genus **Philosamia Grote.**

1874—GROTE. Proc. Am. Phil. Soc., Vol. XIV, p. 258.

P. cynthia Drury.

1773—*Attacus cynthia* DRURY, Ill. Ex. Ent., Vol. II, pl. 6, f. 2.

1787—? *Bombyx anrotus* FABRICIUS, Mant. Ins., Vol. II, p. 108.

1862—*Saturnia insularis* VOLLENHOVEN. Rev. Zool. (2), Vol. XIV, p. 338.

* A European genus. Type *Bombyx dumi* Linn.

Yellowish olive-brown, densely irrorate with black except along the border of wings. Abdomen with three rows of white tufts. Transverse lines white, bordered on one side with black, the outer line shading outwardly into a light purplish tint. Discal marks narrowly lunate, hyaline, with a yellow shade on the concave side. A sub-apical black ocellus with white crescent, below a large apical purplish shade. Expanse, 120 mm.

Habitat, Vicinity of several Atlantic coast cities; introduced from the East Indies.

Genus *Attacus* *Linnaeus*.

1767—*Attacus* LINNÆUS, Syst. Nat., Vol. I (2), p. 809.

1841—*Hyalophora* DUNCAN, Nat. Libr. Ex. moths, p. 124.

Synopsis of species.

Color rather light-brown, collar only partly white **erycina.**
 Dark blackish-brown, collar white **lorulla.**

A. erycina *Shaw*.

1797—*Attacus erycina* SHAW, Nat. Misc., Vol. VII, p. 230.

1805?—*Phalœna splendidus* BEAUVOIS, Ins. Afr. Amér., p. 133.

Discal spots trigonate, large, hyaline, fused into the outer band. Color pale russet-brown, clay-colored on margins, with the usual markings. T. a. band arcuate, white, both t. a. and t. p. bordered towards each other by black. Beyond the crenate t. p. band a shade composed of brick-red, black, pink and white scales. Sub-median space irrorate with black. Sub-terminal marks moderately prominent. Sub-apical ocellus reduced to a black spot surmounted by the lower part of the narrow white sub-apical line.

Habitat, South America to Mexico, Texas?

A. lorulla *Westwood*.

1853—*Saturnia lorulla* WESTWOOD, Proc. Zool. Soc. Lond., p. 159, pl. XXXII, f. 1.

1883—*Attacus cinctus* TEPPER, Bull. Brook. Ent. Soc., Vol. V, p. 65.

Deep blackish umber-brown, the wings less falcate than in *erycina*. Discal spots rounded triangular, hyaline; not reaching or but touching outer band. Otherwise resembles *erycina* except that the collar is white. The transverse white band at base of abdomen is present in both. Expanse, 110—125 mm.

Habitat, Mexico, Arizona.

Genus **Samia** *Hübner*.

1822?—*Samia* HÜBNER, Verz. bek. Schmettl., p. 156.

1865—*Platysamia* GROBE, Proc. Ent. Soc. Phil., Vol. V, p. 229.

Synopsis of species.

General color grizzled-gray.

Size large, discal spots moderately produced.

Outer band of wings bright red **cecropia.**

Outer band dull purplish, obscure **gloveri,**

Size small, discal spots rounded, slightly produced **columbi.**

General color reddish, scarcely gray **rubr.**

S. cecropia *Linnaeus*.

1758—*Bombyx cecropia* LINNÆUS, Syst. Nat., Vol. I, p. 447.

Blackish, irrorate with white on costal part of primaries. Thorax red, collar white. Abdomen banded with black, white and red. Transverse bands white, the inner faint and absent on secondaries, the outer succeeded by a broad red band. Discal spots white bordered with red and black. Outer margins broadly clay-colored, paler sub-terminally with a narrow sinuate sub-terminal black line on primaries. A series of large black spots in the interspaces between veins 2—5. A large oval black ocellus between veins 6—7, succeeded above by a purplish shade and zigzag whitish line. On secondaries, a series of sub-terminal black spots and a line. Expanse, 120—150 mm.

Habitat, Atlantic States.

S. gloveri *Strecker*.

1872—*Platysamia gloveri* STRECKER, Lep. Roph. et. Het., Vol. I.

var. **reducta** *Neumögen*.

1891—*Platysamia gloveri* var. *reducta* NEUMÖGGEN, Ent. News, Vol. II, p. 152.

Exactly like *columbia*, but as large as *cecropia*. The discal dots are produced as in *cecropia*, but lack the red edge. T. a. band arcuate as in *columbia*. There is a purplish shade beyond the white band, not present in *columbia*. Expanse, 125 mm.

Habitat, Arizona to the Rocky Mountains and Montana.

var. *reducta*. Smaller than the typical form with the discal spot of primaries touching the p. t. band. Expanse, 83—85 mm.

Habitat, Mountains of Colorado, 11,000 feet.

S. columbia *Smith*.

1865—*Samia columbia* SMITH, Proc. Bost. Soc. Nat. Hist., Vol. IX, p. 343.

Smaller than *cecropia*; the discal dots without red edges and the transverse outer band white with no red. Abdomen brown and white banded. Thorax and basal half of fore wings deep red, collar white. Discal spots rounded, triangular, only slightly produced. T. a. line arcuate, not angulated on median vein. Expanse, 90—100 mm.

Habitat, Northeastern States, Canada to Michigan.

S. rubra Behr.

1855—BEHR, Proc. Cal. Acad. Sci., Vol. I, p. 46.

1855—*Samia coryalus* BOISDUVAL, Ann. Soc. Ent. Fr., (2), Vol. III, p. 32 (no desc.); 1875—STRECKER, Lep. Roph. et Het., p. 102.

1865—*Platysamia californica* GROFE, Proc. Ent. Soc. Phil., Vol. V, p. 229 (note).

1868—*Saturnia ceanothi* BEHR, Proc. Cal. Acad. Sci., Vol. III, p. 296.

Of a color approaching venetian red but darker, uniform, not irrorate; outer margin clay-colored, with the markings faint, brownish. Transverse lines white, narrow, with black edging, but with no red shade. Discal spots white, edged with black, the one on primaries small, that on secondaries produced outward nearly to, or through the transverse band. Thorax red; collar, base and outer bands of abdomen white. Expanse, 95—115 mm.

Habitat, California to Pacific Northwest.

Genus **Callosamia** Packard.

1864—*Callosamia* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 379.

Synopsis of species.

A whitish band on collar and base of thorax	calleta.
Collar concolorous with abdomen.	
♂ without discal spots, or with very faint ones	promethea.
♂ with discal spots as in the ♀	angulifera.

C. calleta Westwood.

1853—*Saturnia calleta* WESTWOOD, Proc. Zool. Soc. Lond., p. 166.

1886—*Attacus calleta* SMITH, Proc. U. S. Nat. Mus., p. 422.

1882—*Platysamia polysommata* TEPPER, Bull. Brook. Ent. Soc., Vol. V, p. 66.

Dull black or smoky; a pale stigmatal band on abdomen, enclosing darker spots. A white basal band or none. T. a. band of primaries white. Outer band of both wings white, edged with ferruginous and dotted with black. Discal spots angular, small, white, without edging. Terminal space mouse-gray, much ornamented with a black line and sub-triangular spots centered with bluish scales; the most prominent of these between veins 6—7

and is outwardly surrounded by a halo of russet brown reaching toward apex of wing. A zigzag, light blue sub-apical line. Expanse, 80—130 mm.

Habitat, Mexico, Southern Arizona.

C. promethea *Drury*.

1773—*Attacus promethea* DRURY, Ill. Ex. Ent., Vol. II, pl. 11, f. 1, 2.

♂ Black, outer margin clay colored, lines nearly lost; marginal marks and sub-apical ocellus normal. ♀ Reddish brown, discal spot on primaries nearly lost, that on secondaries consisting of a bar, dilated at the ends. Outer transverse line pale, distinct, bordered inwardly with black. Marginal marks as in ♂, but reddish. Expanse, 75—80 mm.

Habitat, Atlantic States westward.

C. angulifera *Walker*.

1855—*Samia angulifera* WALKER, Cat. Brit. Mus., pt. V, p. 1224.

1886—*Attacus angulifera* SMITH, Proc. U. S. Nat. Mus., p. 424.

Larger than *promethia*; sexes similar in wing form and marking. ♂ darker in color than the ♀, blackish, but marked essentially the same. Discal mark on primaries large white, angular, on secondaries, a dilated bar. Expanse, 85—100 mm.

Habitat, Atlantic States.

Genus **Agapema** *Neumegen & Dyar*.

1886—*Saturnia*† SMITH, Proc. U. S. Nat. Mus., p. 430.

A. galbina *Clemens*

1860—*Saturnia galbina* CLEMENS, Proc. Acad. Nat. Sci. Phil., p. 156.

Blackish; transverse lines white, the basal, angular and produced on the veins in the ♂, faint in ♀; on secondaries, the basal two-thirds is washed with white in the ♂. A sub-terminal white band on both wings; apex of primaries marked with black and crimson. Discal spots round, hyaline centrally, edged with yellow and black, with a bluish crescent inwardly. Body parts blackish with a few long whitish hairs. Expanse, 50—60 mm.

Habitat, Mexico to Arizona and Texas.

Genus **Tropæa** *Hübner*.

1822—*Tropæa* HÜBNER, Verz. bek. Schmett., p. 152.

T. luna *Linnaeus*.

1758—*Bombyx luna* LINNÆUS, Syst. Nat., Vol. 1, p. 496.

var. rossi Ross.

1872—*Actias rossi* ROSS, Cat. Lep. Can., p. 5, (note).

Body white, thorax tinged with yellow with a broad purple band behind the collar. Wings pale green, the color inhering in the wing membrane and not in the vestiture, which is white. A broad costal purple band on primaries throwing out a short discal band. Discal spots rounded, hyaline centrally, narrowly edged with white, crimson and yellow and with black and blue inwardly. Fringe tinged with crimson and yellow. The *var. rossi* lacks the green tint. Expanse, 100—125 mm.; length of tails, 35—40 mm.

Habitat, Atlantic States southwestward to Texas.

Genus *Telea* Hübner.

1822—*Telea* HÜBNER, Verz. bek. Schmett., p. 154.

T. polyphemus Cramer.

1775—*Attacus polyphemus* CRAMER, Pap. Exot., Vol. I, pl. 5, figs. A. B.

1764—*Bombyx pophia* LINNÆUS, Mus. Ulr., p. 369.

1811—*Phalena fenestra* PERRY, Arcana.

1883—*Telea polyphemus var. ocella* NEUMÖGEN, Pap., Vol. III, p. 71.

Ocherous brown either pale or dark and reddish. Costa of primaries and collar gray. Basal line on primaries reddish, dislocated on median vein. Outer line gray, bordered with white with a duplicate black costal streak bordered anteriorly with pink. Discal mark round hyaline edged with a yellow and a black line. Secondaries without basal line, the outer line broad. Discal mark as on primaries, but situated in the outer part of a large, oval, black ocellus, sprinkled with blue scales. Expanse, 110—120 mm.

Habitat, North America throughout.

Genus *Saturnia* Schrank.

1822—*Saturnia* SCHRANK, Fauna Boica, Vol. II (1), p. 149.

1806—*Heræa* HÜBNER, Tentamen, p. 1.

1822?—*Pavonia* HÜBNER, Verz. bek. Schmett., p. 157.

1886—*Calosaturnia* SMITH, Proc. U. S. Nat. Mus., Vol. IX, p. 432.

S. mendocino Behrens.

1876—*Saturnia mendocino* BEHRENS, Can. Ent., Vol. VIII, p. 149.

Fore wings reddish brown with blackish costa, and an apical carmine shade, becoming black inwardly and centered with white. Secondaries orange ochraceous shaded with black with an outer diffuse black band. Discal spots round, black, containing an orange ring and blue crescentic mark. Thorax reddish, collar

white with black border on front part of thorax; abdomen smoky black. Expanse, 50—60 mm.

Habitat, Northern coast region of California.

Genus *Automeris* *Hübner*.

1822?—*Automeris* HÜBNER, *Veiz. bek. Schmett.*, p. 154.

1875—*Id* BOISDUVAL, *Ann. Ent. Soc. Belg.*, Vol. XVIII, p. 188.

Synopsis of species.

T. p. line straight.

Size very large; secondaries without yellow **zelleri.**

Size moderate; secondaries largely yellow,

Olivaceous or russet brown; t. p. line pale yellow **pamina.**

Blackish brown; t. p. line broad, white **zephyria.**

T. p. line composed of a series of lunules, sexes dissimilar **io.**

Wings suffused with reddish *var.* **lilith.**

Abdominal border of secondaries without red shade *var.* **argus.**

A. zelleri *Grote & Robinson.*

1868—*Hyperchiria zelleri* GROTE & ROBINSON, *Trans. Am. Ent. Soc.*, Vol. II, p. 193.

Reddish brown, basal space and costa darker; a small triangular white discal dot in a large quadrate dark discal patch, dentate on the exterior side. T. p. line purplish, straight, followed by a dark brownish shade which extends to the obsolete sub-terminal line. Secondaries reddish along abdominal margin, a large black ocellus with central black ring around which the color is pale; two blackish bands between ocellus and margin. Expanse, 130 mm.

Habitat, Texas.

A. pamina *Neumegen.*

1822—*Hyperchiria pamina* NEUMEGEN, *Pap.*, Vol. II, p. 60.

var. aurosea *Neumegen.*

1882—*Hyperchiria pamina var. aurosea* NEUMEGEN, *Pap.*, Vol. II, p. 61.

Fore wings uniform pale ochraceous or russet brown, (*var. aurosea*) with white scales at base. T. a. line barely discernible. T. p. line distinct, narrow, oblique, pale yellow, bordered outwardly with dark brown. Discal mark obscure. Abdomen red banded dorsally; secondaries yellow centrally around the large black, white centred ocellus. An outer black and a pale pinkish curved band, abdominal edge pinkish. Expanse, 60—70 mm.

Habitat, Arizona.

A. zephyria *Grote.*

1882—*Hyperchiria zephyria* GROTE, *Can. Ent.*, Vol. XIV, p. 215.

Thorax and primaries brown-black. A black discal annulus with linear white center; scales at base of wing and oblique slightly curved, broad t. p. band, white. Abdomen pale brown, broadly dark red dorsally. Secondaries ocher yellow centrally around the large black ocellus with white linear centre and blue scales; bordered by a black line outwardly. A sub-terminal darker brown shade band, the base pinkish. Expanse, 55—70 mm.

Habitat, New Mexico.

A. io *Fabricius*.

1775—*Bombyx io* FABRICIUS, Syst. Ent., p. 560.

1810—*Phalena corollaria* PERRY, Arcana.

1855—*Hyperchiria varia* WALKER, Cat. Brit. Mus., pt. VI, p. 1278.

1875—*Io fabricii* BOISDUVAL, Ann. Ent. Soc. Belg., Vol. XVIII, p. 223.

var. lilith Strecker.

1878—*Hyperchiria lilith* STRECKER, Lep. Roph. et Het., p. 139.

var. argus Neumögen & Dyar.

1893—NEUMÖGEN & DYAR, Can. Ent., Vol. XXV, p. 123.

Body and primaries of ♂ yellow, lines purplish. T. a. line rectangularly produced inwardly; t. p. evenly lunulate. Discal mark linear surrounded by two rows of dots which are produced longitudinally. A sinuate row of large sub-terminal dots ending on costa and margin in a purplish shade. Thorax and primaries of ♀ a purplish brown, the marks as in the ♂, but obscure, indicated in whitish. Secondaries yellow centrally, red along abdominal margin. A large black ocellus with blue scales and central white dash. Beyond it, a black median and red sub-marginal line. Expanse, 60—80 mm.

Habitat, Atlantic States westward.

Genus **Thauma** Hy. Edwards.

1875—*Thauma* HY. EDWARDS, Proc. Cal. Acad. Sci., Vol. V, p. 265.

T. socialis Feisthhamel.

1839—*Ormiscodes socialis* FEISTHHAMEL, Mag. Zool., pl. 20, f. 1.

1853—*Dirphia angulifera* WALKER, Cat. Brit. Mus., pt. VI, p. 1363.

1875—*Thauma ribis* HY. EDWARDS, Proc. Acad. Nat. Sci., Vol. V, p. 265.

Dark cinnamon brown. Costal margin near base, angular discal spot and costal half of t. p. line white. Lower half of t. p. line and outer line of secondaries blackish. Expanse, 50 mm.

Habitat, Peru, Chile; Vancouver Island, B. C.

Genus *Coloradia* Blake.1863—*Coloradia* BLAKE, Proc. Ent. Soc. Phil., Vol. II, p. 279.**C. pandora** Blake.1863—*Coloradia pandora* BLAKE, Proc. Ent. Soc. Phil., Vol. II, p. 279.

Grayish black, thinly scaled. T. a. and t. p. lines black sub-lunulate bordered with white on costa. Discal spot round, black. Sub-terminal line whitish, undulate. Secondaries sub-hyaline, grayish, tinged with pink along abdominal margin. Expanse, 70 mm.

Habitat, Rocky Mountains to Cascade Range.↳ Subfamily **Lemoniinae**.Genus *Hemileuca* Walker.1855—*Hemileuca* WALKER, Cat. Brit. Mus., Vol. VI, p. 1317.1864—*Euchromia* PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 382.1872—*Euleucophaeus* PACKARD, Rep. Peab. Acad., Vol. IV, p. 88.1882—*Agyranges* GROTE, Can. Ent., Vol. XIV, p. 215.*Synopsis of species.*

Prevailing color of wing black, secondaries also partly or largely black.

Secondaries red with black border and discal dot or largely overspread

with black **electra.**

Secondaries without any red.

A broad, translucent, pale yellow band on secondaries.

This band narrow **maia.**

This band broad.

Discal dots slightly bent, thorax blackish . . . *var.* **nevadensis.**Discal dots lunate, thorax largely yellowish, *race* **californica.**

Secondaries black with a broken white band often obsolete and not translucent.

White marks on primaries divided by the veins . . . **juno.**White marks often broken, but not by the veins . . . **grotei.**

Prevailing color white or some pale shade; secondaries either immaculate

or but slightly marked with black.

Snow-white with black t. a. and t. p. lines . . . **neumogeni.**Fore wings blackish gray with white bands . . . **tricolor.**

All the wings uniform, pale, sordid pink.

Fore wings with two transverse white lines . . . **sororius.**Fore wings immaculate . . . **hualapai.****H. electra** Wright.1884—*Hemileuca electra* WRIGHT, Pap., Vol. IV, p. 19.

* Described by Hy. Edwards (Papilio, Vol. I, p. 100) from Lower California, Mexico, and not yet known from U. S., unless *sororius* and *hualapai* be only forms of one species.

Fore wings black, sub-translucent with white or pinkish triangular discal dot. Basally, centrally and sub-terminally, the black is more or less replaced by pulverulent white, not segregated into well defined marks. Abdomen and secondaries orange red with black border and round discal spot, in the ♂ overspread with black, but not enough to entirely obscure the colors. Thorax black, mixed with pale yellowish hairs. Expanse, 45--50 mm.

Habitat, Southern California.

H. maia Drury.

1773—*Attacus maia* DRURY, Ill. Exot. Ent., Vol. II, pl. 24, f. 3.

1775—*Bombyx proserpina* FABRICIUS, Syst. Ent., p. 561.

var. nevadensis Stretch.

1872—*Hemileuca nevadensis* STRETCH, Zyg. & Bomb. N. A., Vol. I, p. 108.

1886—*Hemileuca maia* var. *lucina* HY. EDWARDS, Ent. Amer., Vol. I, p. 108

race californica Wright.

1888—*Hemileuca californica* WRIGHT, Can. Ent., Vol. XX, p. 31.

1893—*Hemileuca artemis* PACKARD, Proc. Am. Phil. Soc., Vol. XXXI, p. 172.

Sub-translucent black, with a pale yellowish band on both wings partly or wholly enclosing a black discal spot which contains a yellowish sub-hyaline streak or lunule, less distinct on secondaries. Thorax black, with yellowish hairs on collar and red hairs at end of thorax, or thorax entirely yellowish to the red hairs. Abdomen tipped with red in ♂, yellowish in ♀. The band varies in width, being usually narrow in specimens from the Eastern States, broader in those from the West. Californian specimens are distinguished as indicated in the table. Expanse, 45—70 mm.

Habitat, North America.

H juno Packard.

1871—*Hemileuca juno* PACKARD, Rep. Peab. Aca., Vol. IV, p. 87.

1881—*Hemileuca yavapai* NEUMEGEN, Pap., Vol. I, p. 172.

Black, collar pale yellow and pale hairs on thorax mixed with black. Tip of abdomen red, in the ♂, this color extending more or less up the dorsum even to base of thorax. On primaries a white band divided by the veins opaque, broadest near costa, which it does not reach. A yellowish irregular triangular discal dot surrounded by black, projecting into the white band. A similar band on secondaries but much reduced, pulverulent, often absent. Rarely traces of a discal dot.

Habitat, Mexico to Arizona.

H. grotei *Hopffer.*

1868—*Hemileuca grotei* GROTE & ROBINSON, Trans. Am. Ent. Soc., Vol. II, p. 192.

1873—*Hemileuca diana* PACKARD, Hayden Surv. Terr., p. 557.

Black; collar white, thorax reddish behind. An outer white band on both wings, narrow, not reaching costa or margin, and on primaries continuous or separated into three patches, the costal one lunate, the median, a sub-triangular discal dot, and the third an elongate spot constricted centrally. Expanse, 45—51 mm.

Habitat, Texas to Colorado.

H. neumægeni *Hy. Edwards.*

1881—*Euleucopheus neumægeni* HY. EDWARDS, Pap., Vol. I, p. 171.

Snow white; abdomen, legs and central band on thorax brownish red, in the ♀, abdomen white at the end. Antennæ testaceous brown. Fore wings with band gently undulate, t. a. and t. p. lines black, reniform and elongate orbicular yellowish subhyaline spots bordered with black, and fused to the lower side of the former is a black dash. Secondaries with similar discal spot and outer black band. Expanse, 50—60 mm.

Habitat, Arizona.

H. tricolor *Packard.*

1872—*Euleucopheus tricolor* PACKARD, Rep. Peab. Acad., Vol. IV, p. 89.

Fore wings black, irrorate with white, with broad white arcuate t. a. and straight t. p. band; fringes also white. Discal dot lunate, yellowish, bordered with black. Secondaries immaculate sordid white. Thorax and body with reddish tint intermixed. Expanse, 50 mm.

Habitat, New Mexico.

H. hualapai *Neumægen.*

1883—*Euleucopheus hualapai* NEUMÆGEN, Pap., Vol. III, p. 138.

Immaculate uniform pale pinkish cream color, the costal edge dark ochereous. Below a brighter pink, as also the shorter hairs on thorax and abdomen; giving the appearance of a pink underground. Antennæ testaceous brown. Expanse, 65 mm.

Habitat, Arizona.

Genus **Pseudohazis** *Grote & Robinson.*

1860—*Pseudohazis* GROTE & ROBINSON, Ann. Lyc. Nat. Hist. N. Y., Vol. VIII, p. 377.

Synopsis of species.

Hind wings deep yellow.

Fore wings flesh color or carneous white.

Abdomen black banded **eglanterina**

Black bands obsolete dorsally *var.* **nuttalli**.

Fore wings deep yellow, more or less shaded with light purple.

Black markings distinct, heavy **shastænsis**,

Black marks faint or obsolete *var.* **denudata**.

Hind wings white, or very pale yellow.

Terminal black dashes on secondaries **hera**.

No terminal black dashes on secondaries *var.* **marcata**.

P. eglanterina *Boisduval*.

1852—*Saturnia eglanterina* BOISDUVAL, Ann. Ent. Soc. Fr., (2), Vol. X, p. 323.

1877—*P. hera* *var. arizonensis* STRECKER, Lep. Roph. et Het., p. 137.

var. nuttalli *Strecker*.

1875—*Pseudohasis nuttalli* STRECKER, Lep. Roph. et Het., p. 107.

Colored as indicated in the synopsis. The black marks on the wings consist of a basal dash on fore wings, a t. a. and t. p. curved bands, a large rounded discal spot (with or without a narrow white crescent) and terminal wedge-shaped spots on the veins. Expanse, 50—60 mm.

Habitat, from the Rocky Mount. to the Sierra Nev. and Arizona.

P. shastænsis *Behrens*.

1880—*P. eglanterina* *var. shastænsis* BEHRENS, No. Am. Ent., Vol. I, p. 62.

var. denudata *Neumogen*.

1891—*H. eglanterina* *var. denudata* NEUMÖGEN, Can. Ent., Vol. XXIII, p. 145.

Fore wings purplish, with a streak of indian yellow between veins 4 and 5, or partly overspread with indian yellow, with black marks as in *eglanterina*, or largely suffused by black (from *shastænsis*). Or the black marks may become pulverulent and obscure or largely lost (*var. denudata*).

Habitat, Coast region of California to the Sierra Nevada and northward.

P. hera *Harris*.

1841—*Saturnia hera* HARRIS, Rep. Ins. Mass., p. 286.

1855—*Hemileuca pica* WALKER, Cat. Brit. Mus., pt. VI, p. 1318.

var. marcata *Neumogen*.

1891—*Hemileuca hera* *var. marcata* NEUMÖGEN, Can. Ent., Vol. XXIII, p. 146.

Wings yellowish white, head, collar, narrow terminal segmentary bands on abdomen and anal tuft indian yellow. Black marks as in *eglanterina* or the terminal cuneiform marks of secondaries absent (*var. marcata*). Expanse, 55—70 mm.

Habitat, Rocky Mountain region, Eastern Oregon.

(TO BE CONTINUED.)